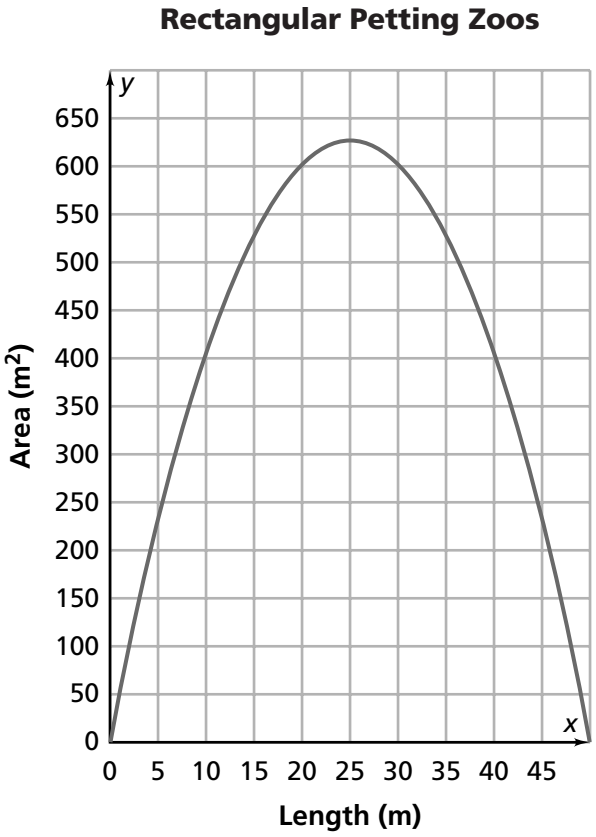
1ACE Exercise 4

4. A farm wants to add a small rectangular petting zoo for the public. They have a fixed amount of fencing to use for the zoo. This graph shows the lengths and areas of the rectangles they can make.



a. Describe the **shape of the graph** and any **special features** you observe.

Shape:

Special Features:

b. What is the **greatest area** possible for a rectangle with this perimeter?

HINT Refer to the graph above.

What are the dimensions of this rectangle?

HINT What is the length? What is the width?

1ACE Exercise 4 *(continued)*

c. What is the **area** of the rectangle with a **side of length 10 meters**?

What is the **area** of the rectangle with a **side of length 40 meters**?

Explain how these two rectangles are related.

d. What are the **dimensions** of the rectangle with an **area of 600 square meters**?

HINT Refer to the graph.

Length:

Width:

e. What is the **fixed amount of fencing** available for the petting zoo?

HINT To answer this question, you will need to determine the length and width of the rectangle. To do this:

1. Pick one area of the cage (i.e., 600). Using the graph, a rectangle with an area of 600 can have one length of 20 and one length of 30 (width). What is the perimeter of a rectangle 20 by 30?

2. Pick another area and see if you get the same perimeter.

3. Explain how you found the perimeter.